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SUBSTITUTE SPECIFICATION

PARTIAL RESPONSE DEMODULATING METHOD AND  
APPARATUS USING THE SAME

CROSS-REFERENCE TO RELATED APPLICATION

The present application is a continuation of  
application Serial No. 09/124,840, filed July 30, 1998,  
now U.S. Patent No. 6,337,889, which relates to subject  
10 matter described in U.S. application Serial No.  
08/975,670, filed November 28, 1997 entitled AINFORMATION  
RECORDING/REPRODUCING METHOD AND APPARATUS USING EPRML  
CONNECTION PROCESSING SYSTEM, now U.S. Patent No.  
6,069,856, the disclosure of which is hereby incorporated  
15 by reference.

BACKGROUND OF THE INVENTION

The present invention is generally related to a  
signal processing system for either a magnetic disk  
20 apparatus or an optical disk apparatus. More  
specifically, the present invention is directed to a  
high-efficiency demodulating method of a high-order  
partial response system such as an EEPRML (Extended  
Extended Partial Response Maximum Likelihood) signal  
25 processing system and an EEEPRML (Extended EEPRML) signal  
processing system.

***Specification***

1. The substitute specification filed 8/10/2005 has been entered because it conforms to 37 CFR 1.125(b) and (c) because: a marked-up copy of the substitute specification has been supplied (in addition to the clean copy).

**EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney Carl Brundidge on 09/13/2005:

3. **SUBSTITUTE SPECIFICATION:**

- a. Pg. 17, line 7, delete "C , D+...+C<sub>n</sub>D<sub>n</sub>", insert "C<sub>1</sub>D+...+C<sub>n</sub>D<sup>n</sup>"
- b. Pg. 23, line 9, delete "C<sub>n</sub>D<sup>n</sup>", insert "C<sub>n</sub>D<sup>n</sup>".

4. **Listing of Claims:**

- a. Claim 17, line 5, delete "D<sub>n</sub>", insert "D<sup>n</sup>".
- b. Claim 18, line 5, delete "D<sub>n</sub>", insert "D<sup>n</sup>".
- c. Claim 19, line 5, delete "D<sub>n</sub>", insert "D<sup>n</sup>".
- d. Claim 19, line 8, delete "D<sup>2</sup>", insert "D".

- e. Claim 20, line 5, delete " $D_n$ ", insert " $D^n$ ".
- f. Claim 21, line 5, delete " $D_n$ ", insert " $D^n$ ".
- g. Claim 21, line 9, delete " $D_3$ ", insert " $D^3$ ".
- h. Claim 22, line 5, delete " $D_n$ ", insert " $D^n$ ".
- i. Claim 22, line 9, delete "-", insert "+".
- j. Claim 23, line 2, delete ":", insert "having a waveform of  $(1-D^2)(c_0 + c_1D + \dots c_nD^n)$ ".
- k. Claim 23, line 5, delete ".", insert ",".
- l. Claim 23, line 6, insert "wherein said coefficients ( $c_0, c_1, \dots c_n$ ) are integer numbers and  $(1-D^2)$  is the partial response characteristic of said input signal."
- m. Claim 27, line 4, delete ":", insert "having a waveform of  $(1-D^2)(c_0 + c_1D + \dots c_nD^n)$ ".
- n. Claim 27, line 6, delete ".", insert ",".
- o. Claim 27, line 7, insert "wherein said coefficients ( $c_0, c_1, \dots c_n$ ) are integer numbers and  $(1-D^2)$  is the partial response characteristic of said input signal."

### REASONS FOR ALLOWANCE

1. The following is a statement of reasons for the indication allowable subject matter: The instant application discloses a signal processing circuit. Prior art references show similar methods but fail to teach: **“a discrete filter converting the output from said equalizer into an asymmetrical waveform of  $(1-D^2)(c_0 + c_1D + \dots c_nD^n)$ ”, as in claims 17, 18, 19, 20, 21, 22; “a discrete filter converting an input signal into an asymmetrical response having a waveform of  $(1-D^2)(c_0 + c_1D + \dots c_nD^n)$ ”, as in claim 23; “a discrete filter converting the output from said equalizer into an asymmetrical response having a waveform of  $(1-D^2)(c_0 + c_1D + \dots c_nD^n)$ ”, as in claim 27.**

### *Conclusion*

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 571-272-3047. The examiner can normally be reached on Monday – Friday, 8-5.

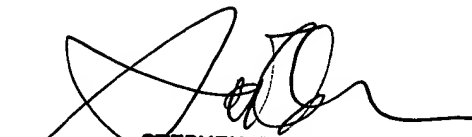
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Art Unit: 2634

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

*Cicely Ware*

cqw  
September 13, 2005



STEPHEN CHIN  
SUPERVISORY PATENT EXAMINER  
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